

## **REMARKS/ARGUMENTS**

Reexamination of the captioned application is respectfully requested.

### **A. SUMMARY OF THIS AMENDMENT**

By the current amendment, Applicants basically:

1. Amend independent claims 1, 48, and 100.
2. Amend the dependencies of claims 7 – 8, 57 – 58, and 110-111.
3. Cancel claims 5 – 6, 55 – 56, 92, and 108 - 109 without prejudice or disclaimer.
4. Respectfully traverse all prior art rejections.
5. Advise the Examiner of the simultaneous filing of a Petition to Extend.

### **B. PATENTABILITY OF THE CLAIMS**

Claims 1, 5-6, 8-9, 11-13, 15-17, 48-51, 44, 45, 48-49, 61-63, 91, 93, 100-104, 108-109, 111-112 and 114-116 stand rejected under 35 USC §102(b) as being anticipated by U.S. Patent 5,022,258 to Wilson. Claims 1-4, 48, 52-54 and 94 stand rejected under 35 USC §102(e) as being anticipated by U.S. Publication 2004/0145273 to Khoury et al. Claims 1-7, 48, 52-57, 94 and 105-107 stand rejected under 35 USC §102(b) as being anticipated by U.S. Patent 6,428,134 to Clark et al. Claims 7, 10, 14, 57, 60, 64, 110, 113 and 117 stand rejected under 35 USC §103(a) as being unpatentable over Patent 5,022,258 to Wilson. All prior art rejections are respectfully traversed for at least the following reasons.

Independent claim 1 has now been amended to include therein the limitation of dependent claim 6, i.e., that the drive circuit changes dynamically the drive signal in dependence upon a sensed operational parameter of the device. In similar manner, independent claim 48 has now been amended to include therein the same limitation of dependent claim 56 (same limitation as dependent claim 6); and independent claim 100 has now been amended to include therein the same limitation of dependent claim 109.

Dependent claims 6, 56, and (presumably) 109 have sustained separate prior art rejections based on Wilson and Clark. As explained below, neither Wilson or Clark provided a basis for rejection of former dependent claims 6, 56, or 109, or for now-amended independent claims 1, 48, and 100.

U.S. Patent 6,428,134 to Clark et al. does not teach a drive circuit which changes dynamically a drive signal in dependence upon a sensed operational parameter of a device. The office action points (in the first full ¶ of page 5) to Clark's verbiage wherein frequencies of pulses for the Clark piezoelectric ink jet print head are reinforced by the resonant frequencies of the ink chambers which are associated with each ink nozzle. Such verbiage occurs, e.g., in Clark col. 4, lines 44 – 52 and col. 5, lines 66 – col. 6, line 6. But nowhere does Applicant perceive that Clark actually senses resonance frequencies of ink chambers. Rather, it appears to Applicant that the drive signal applied to Clark's piezoelectric ink jet print head 50, in the form of electronic waveform 80, emanates from waveform generator 130 based on information obtained from look up table (LUT) 56 and nozzle selector 140, all under control of controller 120. See, e.g., col. 5, lines 10 – 28. There is no illustration or description of any feedback signal or sensor signal from Clark's transducer 55 for the purpose of providing a sensed parameter. To the contrary, everything in Clark seems to indicate that all necessary information for driving the transducer is stored in predetermined manner. Note, in this regard, incessant reference by Clark to "predetermined values (e.g., col. 4, lines 41 - 52

U.S. Patent 5,022,258 to Wilson describes instruments used to measure a gap between a sensing orifice and a surface facing the sensing orifice by blowing gas as a gas gage. U.S. Patent 5,022,258 to Wilson differs from its Wilson predecessor by employing gas in an alternating current instead of in a direct current manner (see, e.g., col. 1, lines 51+). The gas is supplied by a gas pump 16 having a moveable wall (diaphragm) 19 (see, e.g., col. 3, lines 65+). An actuating coil 20 is energized by unillustrated and undescribed circuitry to cause

the diaphragm to oscillate at a pre-determined frequency and amplitude to cause the a.c. flow of gas in a gas conduit. *See, e.g.,* col. 4, lines 1 – 6.

Wilson does not describe a dynamically changeable signal applied to a piezoelectric actuator. Wilson does refer to “dynamic” in terms of a diaphragm sensor (not the diaphragm in the gas pump) being able to sense or cause sensing of properties which are changing rather than static. But insofar as the driving of Wilson’s diaphragm 19 is concerned, there is no indication of a drive circuit which is arranged to change dynamically the drive signal. As indicated at the top of column 4, Wilson’s drive circuit is not even illustrated, not described, and applies a signal of a pre-determined frequency and amplitude. There is no teaching by Wilson of changing the frequency and/or amplitude of the drive signal to diaphragm 19 on the fly during real time operation of the gas gage. Nor would the person skilled in the art, in making a sensitive measurement of the type sought by Wilson, be motivated to change such a drive signal during real time operation. What Wilson does teach, as incorrectly alluded to at the top of page 4 of the office action, is changing sensitivity of a sensor 25 elsewhere situated in the Wilson gage, in accordance with temperature. Changing the sensitivity of the sensor due to sensed conditions is not the same as changing dynamically a driving signal to the Wilson pump (which Wilson does not, and would not logically do). Applicant sees no basis for the allegation of the office action that Wilson discloses the drive signal varying over time, and specifically requests the Examiner to refer to exact column and line number if this rejection and such allegation are to persist hereafter.

In view of the foregoing and other considerations, independent claims 1, 48, and 100 are deemed in condition for allowance, as well as all remaining (not withdrawn) claims which are dependent thereon.

**C. MISCELLANEOUS**

A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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